

The beef with beef

We're eating more than ever -- but at what cost?

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(CNN) Beef isn't good for the planet. But you probably knew that already.

You might know beef is responsible for [41%](#) of livestock greenhouse gas emissions, and that livestock accounts for [14.5%](#) of total global emissions. If you didn't, you've probably heard about the methane -- a greenhouse gas 25 times more potent than carbon dioxide -- that cattle produce from both ends.

You've almost certainly seen stories about land cleared to make way for cattle and the grain that we fatten a lot of cattle on, and the lost capacity to remove carbon dioxide from the atmosphere.

Perhaps you read the alarming UN Intergovernmental Panel on Climate Change (IPCC) report, that said changing our diets could contribute [20%](#) of the effort needed to keep global temperatures from rising 2°C above pre-industrial levels.

So why are we eating more beef than ever?



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Global consumption of beef and veal is set to rise in the next decade according to projections from the Organisation for Economic Co-operation and Development (OECD)

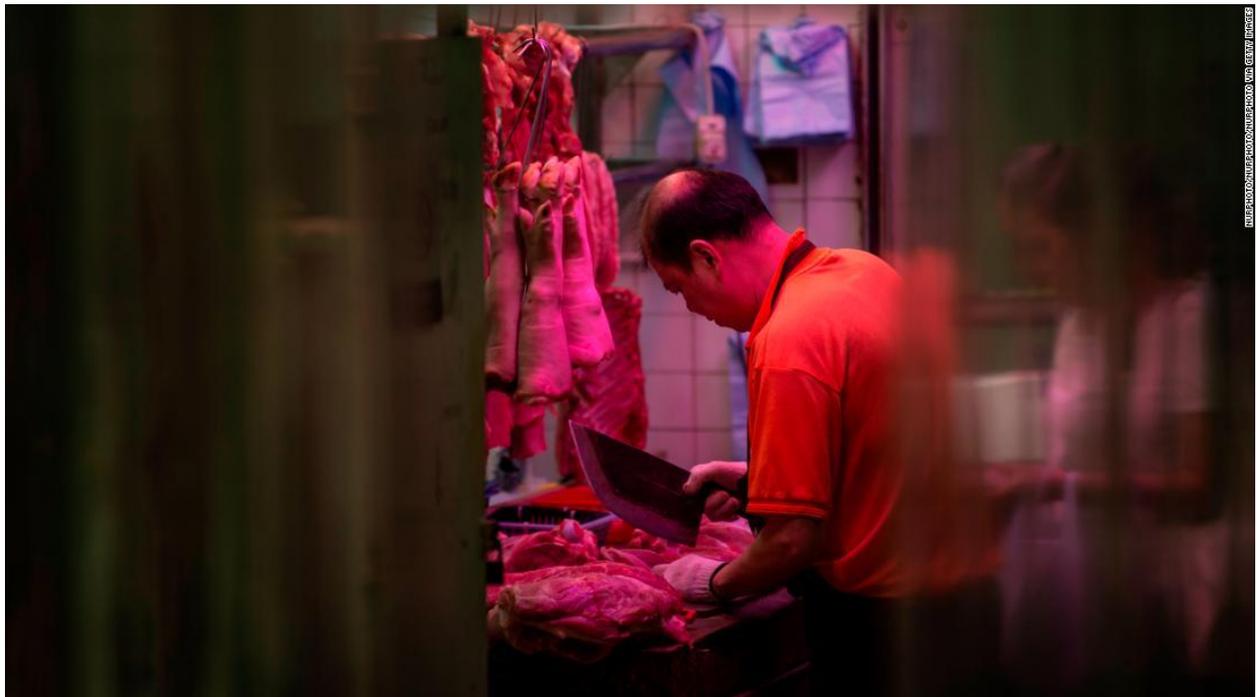
and the Food and Agricultural Organization of the United Nations (FAO). A joint report predicts global production will increase [16%](#) between 2017 and 2027 to meet demand.

It's an uneven growth spread: consumption is expected to rise by 8% in developed countries and by 21% in developing regions. Consumption in Asia is projected to rise 24%.

If we're to heed scientists' warnings to eat less, where will the necessary changes come from? And is the message getting across?

CNN followed OECD-FAO data around the world and selected five countries across five continents. We asked consumers, butchers and chefs, stakeholders in the industry and scientists critiquing it, for their thoughts on the future of beef.

This is what they said.



There was a time in China when beef was nicknamed "[millionaire's meat](#)." That time has passed.

A sustained economic boom in the world's most populous country has resulted in a huge surge in meat consumption. Pork is still [king of the market](#) but per person beef and veal consumption has risen more than six-fold and overall consumption more than seven-fold since 1990.

China's average consumption per person is still well below the world average (and six times smaller than the US) and its growth rate is slowing, says Henning Steinfeld, chief of livestock information at the FAO. However, given the size of China's population, a nudge on the needle here has caused seismic shifts in the world beef industry. "China is the top global growth market," says Erin Borrer, an economist at the US Meat Export Federation.

Hong Kong, as a special administrative region with a British colonial history, gives some clues in imagining China's future trajectory. Hong Kongers [eat more beef](#) than the mainland and a Western diet is more established (in OECD-FAO statistics Hong Kong is not included in China's data).

Tsang Tik-sheung is a 55-year-old beef butcher in the Sheung Wan Market and Cooked Food Center. He says he's noticed tastes move towards foreign products.

"(Young) people normally like barbecue beef, fresh diced beef, steaks," he explains, which require frozen foreign imports with a softer texture than locally-sourced, more fibrous beef.

Shopping in the same wet market, domestic worker Marina Cuvamenos, originally from the Philippines, says she never buys meat from here. "My boss wants imported beef from Australia," she explains.

So what of the ecological concerns?

"Hong Kong is very much ahead of the curve," argues David Yeung, "not just relative to China, but relative to all of Asia."

Yeung founded Green Monday, a startup geared towards sustainable living, including diet. He says the number of flexitarians -- people who eat a largely vegetarian diet with occasional meat or fish -- in Hong Kong has "risen dramatically over the last six years," fueled by rising awareness in dietary health, sustainability, and availability of plant-based options in restaurants.

He caveats that in mainland China the demographic looking to make dietary changes is typically more educated and affluent. For "the mainstream," as Yeung describes it, he paints a different picture underpinned by social mobility: "The fact that they are eating out more, or ordering much more, rather than doing their own cooking; all of these (factors) contribute to rising consumption of meat."

When peak beef will be reached across China is unknown. Consumption is only set to rise in the next decade according to OECD-FAO projections.

Whether dietary guidelines drawn up by China's health ministry in 2016 to [halve meat consumption on health grounds](#) will have an impact also remains to be seen.

But one thing's for sure: millionaire's meat has lost none of its currency.



Bevo the Texas longhorn has been the University of Texas' football mascot for over a century. But on match day, bathed in autumn sunshine, the steer looks no older than three.

The mascot is the 15th animal to take on the role, and one of 12 million head of cattle in the state, the heart of beef country in the US, the largest beef-producing nation on the planet. The US also eats more beef than any other country; more than Africa, Oceania, Japan, Argentina and the Philippines combined.

Both consumption and production are only set to rise in the next decade. Consumption per person, however, continues to decline from its peak back in the [1970s](#).

Bevo lives on pasture, grass-fed and roaming free. But not all cattle receive the same treatment. In November, Texas had [2.68 million head of cattle](#) bulking up on large-scale feedlots -- more than any other state in the US.

Feedlots reduce emissions per kilogram of meat, explains Steinfeld. They're intensive growing environments where grain, silage, hay and sometimes protein supplements are used to bring cattle up to slaughter weight in a short period of time. Less land per animal is required, but the model brings about other environmental conundrums, including the land required to grow feed.

Fertilizers used to grow feed, along with cattle manure, can produce nitrous oxide, a greenhouse gas about 200 times more potent than carbon dioxide explains Michael Webber, acting director of the University of Texas Energy Institute.

"I think beef is too cheap, I think water is too cheap. I think everything is too cheap," he adds. "All our resources are priced at a point in the US which invites waste."

"The US meat production system stands as a model for the rest of the world about how to achieve meaningful results," the North American Meat Institute told CNN in a prepared statement. "In the US today we produce more meat using fewer animals, land, water and other resources than ever before."

Raymond Butler owns Nixon Livestock Commission, Inc, an auction house roughly 45 miles east of San Antonio. He's deeply skeptical of any link between livestock emissions and global warming. "I don't believe that the science can be right," he says. "We've had cattle on this Earth and we've had gases on this Earth, forever."



Nixon Livestock Commission owner Raymond Butler.

Butler says he doesn't believe in global warming. He mentions droughts and says they haven't had much of a winter in the last couple of years. But it would have to get really bad before he would believe scientists, he says. "I just think that news people, they blow things out of proportion," he explains.

It should be said Butler's views don't reflect all Texans'. A [2018 study](#) by Yale University found 70% of Texans thought global warming was taking place and 56% thought it was mostly caused by human activities.

Back at the football game, the question of eating less beef. Burger in hand, mechanical engineering student Arinze Nwankwo says he probably would eat less beef in the future. "But not today," he adds, "because this is delicious."



"I think that the beauty of humans in life is to change," says Francis Mallmann.

Mallmann, Argentina's preeminent chef, made his name doing beautiful, primeval things with fire. The philosopher king of the barbecue, his party trick is splaying whole animal carcasses and hoisting them up like sails to the wind, allowing heat and smoke to dance across flesh and fat.

So it came as a surprise when the chef said in a recent interview he thought we wouldn't be eating meat in 30 years time.

"From what I see in my restaurants -- that obviously are very high end -- I feel that change is going to be fast," he told CNN from his home in Buenos Aires. "We'll be eating much less meat or none."

Cut Argentina and she bleeds beef. But in the past decade the idyllic image of the gaucho cowboy on the Pampas has made way for massive investment in intensive cattle feedlots, says Steinfeld.

After a sustained dip in production coinciding with the global financial crisis, Argentina is estimated to surpass pre-2009 levels by 2027. But there's another story, too: annual consumption per person is projected to flatline, having fallen by more than 15 kilograms since 1990.

Mallmann says he received some backlash for his comments. But he insists his audience is global and is plowing ahead on a new book of vegetarian and vegan cuisine. He says it's a tribute to the many messages he's received from a new wave of ethically-minded fans who abstain from meat. "I owe these people," he says, describing a shift away from the "quite aggressive" discourse from vegans in the past.

So is it the responsibility of chefs to steer diners' tastes? "Of course," Mallmann says. He cites French chef Alain Passard, who took red meat off the menu of his restaurant [L'Arpege in 2001](#) saying he was bored with meat and wanted to explore vegetables more. The restaurant kept all three Michelin stars.

"I think that it's very important in life to learn to close doors, gently, without slamming them," Mallmann adds. "Maybe it will take many, many, many doors before I make a radical decision, but it's a new path."



The story goes that the medieval butcher's guild of Limoges was once so wealthy it [lent money to kings](#). The city in central France is home to prized Limousin beef and today it remains the capital of French meat, according to local butcher Francois Brun.

France has the largest head of cattle and [produces more beef and veal](#) than any other country in the EU. Its citizens also eat [nearly 60%](#) more beef per person than the EU average according to European Commission data. But EU-wide, beef consumption, production, and exports are all expected to drop in the next decade.

Butchers in Limoges may not have the same power they once wielded, but they still put on the biggest party in town, La Frairie des Petits Ventres ("The Brotherhood of Small Bellies"), an annual festival of meaty delights in the old quarter.

Michel Toulet is president of the Association Renaissance du Vieux Limoges, the event organizer. "I've heard it said that we are creating carnivores," says Toulet. "I'm sorry; we have canine teeth for eating meat. Man is an omnivore."

So what of calls to consume less beef? "I'm happy to believe we need to eat less meat, but on the other hand you need to eat better meat," Brun says. And what of the

consequences? "If we consume less beef it will impact the farmers," he speculates. "It could bring (about) another crisis."

The meat industry in France has its guard up. In June the national confederation representing butchers [sent a letter to the interior ministry](#) citing acts of vandalism against shops by vegan activists, calling the incidents "a form of terrorism" and linking them to the increased media profile of veganism.

"The vegetarian and vegan movements are not very well accepted in Limoges or Limousin, and that creates a tension," says Toulet. Brun says protesters are few but "make a lot of noise."

"I don't think it really threatens Limoges' reputation," he adds. "I don't think it damages (our) identity."



"We've got 11 official languages," says Jan Scannell. "Braai is a word we use in all 11."

Scannell, who also goes by the name "Jan Braai," is the man responsible for National Braai Day, a campaign to rebrand Heritage Day, a public holiday on September 24. For the uninitiated, a braai is a form of barbecue and something of a national religion in South Africa.

South Africans eat approximately the same amount of beef per person as the average European and nearly three times as much as the average African. And though braaing features other meats and vegetables, beef steak and boerewors, a majority beef sausage, are staples.

"There is a global move towards sustainability, and the meat industry does get a lot of flack," Scannell says, although he adds "I cannot honestly tell you that it plays a role in South Africa."

"It's much easier to get on board with sustainability initiatives for first world countries," Scannell argues.

"I'm not trying to make any excuses for South Africa," he adds. "I think in terms of a very well-developed third-world country, I'd say our noses are quite clean."

South Africa has examples of highly-industrialized, high-intensity beef production. South of Johannesburg is the Karan Beef feedlot, [reportedly the largest in the world](#), with 160,000 cattle on site and 500,000 head sent to slaughter annually. But across Sub-Saharan Africa there are headwinds.

According to a [2013 FAO report](#), Sub-Saharan cattle produce the second highest amount of methane per kilogram of meat, while according to mapping by the [World Resources Institute](#) (WRI) the region has a higher distribution of extremely inefficient beef production systems than anywhere else.

Various factors can explain production inefficiency says Steinfeld, including cattle used to pull farm equipment or kept to occupy land to maintain a claim on it. Then there's the lifecycle of cattle raised on pasture, taking up more land and reaching slaughter weight later than animals would in a feedlot.

"The biggest potential improvements in productivity of raising beef actually lie in the developing world," says WRI analyst Richard Waite. Increasing productivity doesn't necessarily mean intensive feedlots, he adds; quality of pasture and improving veterinary care can both play a part.

Over the next decade, OECD-FAO data predicts beef production Africa-wide will grow at a higher rate (2.34% annually) than any other continent.

As it stands the average African ate only an estimated 3.78 kilograms of beef and veal in 2017 -- considerably less than the 6.41-kilogram global average.

The WRI says there is positive room for ruminant consumption to grow in Sub-Saharan Africa. It predicts that by 2050 the average person in the region will be eating approximately the right daily amount to hit a global target to half the greenhouse gas emissions gap. (The WRI calculate an emissions gap of 11 gigatons in 2050; the gap between a projected 15 gigatons of annual greenhouse gas emissions and the 4-gigaton level required to keep global warming below 2°C.)

Back in South Africa, Scannell ponders whether his country would ever enact a systematic overhaul of its diet: "We are certainly not a country that smirks at sustainability initiatives," he says. "We as South Africans -- and a large part of the world -- sure, we can survive; we can eat less meat."

And can he see a future where meat isn't at the heart of the braai?

"Not in my lifetime," he says, laughing. Then a pause. "Well ... Did Blackberry see a future when their phone wasn't at the center of communications?"

"I guess it's not something you should ever be sure of."